

REMARKS

Claims 1-7 are pending in this application. Claim 6 has been canceled and the subject matter therein has been incorporated into claim 1.

1. Specification

The Examiner has objected to the Specification because the priority U.S. Patent Application was misidentified. Applicant has amended the Specification to correct this error. Reconsideration and removal of the objection is respectfully requested.

2. Claim Rejections under 35 U.S.C. §112, second paragraph

Claims 2 and 7 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner argues that the metes and bounds of claim 2 cannot be determined. Applicant submits that the scope of this term would be understood by the skilled artisan in view of Applicant's disclosure. In particular, Applicant would point out that the term is defined on page 3 of the Specification and refers to those polyols wherein the carbon atom in position 2 contains a strongly hindered hydrogen. Since this term is adequately defined by the Specification, Applicant has not amended claim 2. Claim 7 has been rejected because it depended from itself. Applicant has corrected this obvious error and claim 7 now depends from claim 4. Applicant submits that the foregoing amendments and remarks have addressed and obviated all of the outstanding indefiniteness rejections. Reconsideration and removal of these rejections is respectfully requested.

3. Rejections under 35 U.S.C. §112, first paragraph

The Examiner has rejected claim 6 arguing that the Specification does not reasonably provide enablement for a refrigerant oil comprising any complex ester of 2-ethyl-1,3-hexanediol. Applicant has cancelled claim 6 thereby rendering the rejection moot. Reconsideration and removal of the enablement rejection is, therefore, requested.

4. Rejections under 35 U.S.C. §102

The Examiner has issued two anticipation rejections. In the first rejection, claim 6 has been rejected under 35 U.S.C. §102(b) as being anticipated under JP 07-224000. The Examiner has indicated that the anticipation rejection could be overcome by including the limitation of the ester formed in claim 1 within claim 6. As noted above, Applicant has amended claim 1 by incorporating the subject matter of claim 6. It is believed that the amendment corresponds with the Examiner's suggestion and distinguishes the present invention from that disclosed in JP 07-224000. In the second rejection, claims 1-6 have been rejected as being anticipated by Nakahara et al. (US Patent No. 5,374,366). Applicant respectfully traverses. The Examiner argues that the Nakahara reference discloses the compositions recited in Applicant's claims. Yet, the Examiner has not established that the Nakahara compositions meet each and every limitation of the claims as is required for purposes of anticipation. In particular, the Examiner has not established that the Nakahara reference uses the same ratio of mono- and dicarboxylic acids to esterify the polyols as is required by the instant claims. As such, Applicant submits that anticipation rejection in view of Nakahara must fall and respectfully requests reconsideration and removal of the rejection.

5. Rejections under 35 U.S.C. §103(a)

Finally, the Examiner has rejected claims 1-6 under 35 U.S.C. §103(a) as being unpatentable over Hagihara et al. (EP 415,778). These claims have also been rejected as obvious over Nakahara. Hagihara is cited for disclosing a refrigeration oil composition comprising a hydrogenated fluoroethane and an ester obtained from an aliphatic alcohol having 1 to 6 primary hydroxyl groups, a saturated aliphatic monocarboxylic acid having 2 to 9 carbon atoms and a disaturated dicarboxylic acid having 2 to 10 carbon atoms. The Examiner points out that the reference lists the preferred aliphatic polyhydric alcohols, of which 2-ethyl-1,3-hexanediol is particularly preferred. The Examiner argues that example 15 (which refers to products 1 and 9) of Hagihara discloses esterification using the mono and diacids claimed by the applicant in the claimed ratio. Although the reference does not specifically disclose a working example of a composition comprising 2-ethyl-1,3-hexanediol, the Examiner argues that it would have been obvious to one of ordinary skill in the art that the mixtures claimed are covered within the bounds of this reference because 2-ethyl-1,3-hexanediol as well as all of mono- and diacids useful in practicing the reference are disclosed for use in mixtures of esters in combination with fluorocarbon refrigerants. The Examiner uses a similar argument with respect to the Nakahara reference. Applicant respectfully traverses.

The present inventors have surprisingly discovered that excellent solubility can be obtained with complex esters of 2-ethyl-1,3-hexanediol (ETHD) even at high proportions of dibasic acids as seen in the experimental results discussed in the Specification. Table 2 further indicates that the solubility of the polyol/complex ester of ETHD drops when another polyol is introduced. These results are not disclosed or suggested by the references cited by the Examiner.

First, Applicant would point out that predictability in this art is generally poor. Thus, contrary to the Examiner's contention, the skilled artisan would not have a reasonable expectation, from the laundry list disclosures of Nakahara and Hagihara, that ETHD could be selected and esterified with a mixture of mono- and dibasic carboxylic acids in the specified molar ratio to achieve good solubility in fluorinated hydrocarbons. To test the Examiner's hypothesis, Applicant has conducted experimental tests using another polyol mentioned by Hagihara, namely pentaerythritol (PE) and found that the resulting esters were much less soluble than those produced via the instant invention. These results demonstrate that, based on the long list on page 3 of Hagihara (or Nakahara), that the skilled artisan could not merely select a candidate polyol and assume that they would be able generate complex esters with good solubility in fluorinated refrigerants. Although it may have been obvious to try each of the polyols disclosed in these references to arrive at the present invention, there is simply no suggestion or motivation to do so especially in light of the low probability of success. It is well settled that evidence showing there is no reasonable expectation of success may support a conclusion of non-obviousness. MPEP 2143.02 citing *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPS 1976). Since the skilled artisan would have no reasonable expectations of success, Applicant submits that neither the Nakahara nor the Hagihara reference renders the instant invention obvious. Reconsideration and removal of the obviousness rejections is, therefore, respectfully requested.

Favorable consideration and early allowance of the claims is respectfully requested.

- ☒ Petition for three (3) month(s) extension of time pursuant to 37 C.F.R. §§ 1.17 and 1.136(a). \$950.00 for the extension of time.
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Respectfully submitted,

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Attachment(s)

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